REMARKS

I. Introduction

Claims 14 to 24 are pending in this application. Claims 14 to 19 and 22 to 24 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 4,659,960 to Toya et al. (hereafter "Toya") in view of U.S. Patent No. 4,832,988 to Bogenschutz et al. (hereafter "Bogenschutz") and U.S. Patent No. 6,076,965 to Rosen et al. (hereafter "Rosen"). Claims 14 and 20 to 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Toya in view of Rosen and in further view of U.S. Patent No. 4,387,258 to Vadekar et al. (hereafter "Vadekar").

II. The rejection based upon Toya, Bogenschutz, and Rosen should be withdrawn

Claims 14 to 19 and 20 to 24 stand rejected under 35 U.S.C. § 103(a) as being obvious over Toya in view of Bogenschutz and Rosen. In response, Applicants respectfully submit that combination of Toya, Bogenschutz, and Rosen does not render obvious claims 14 to 19 and 22 to 24 for at least the following reasons.

Claim 14 recites a method for manufacturing a temperature sensor, in which **at least one conductor track is formed by a currentless deposition of a metal onto a surface of a carrier composed of a metal oxide, a metal nitride and/or a metal carbide, and by a subsequent thermal treatment**, and an evaluation device is connected to the at least one conductor track, which is configured to measure and evaluate a temperature-dependent change in a resistance of the at least one conductor track.

Toya purportedly concerns a spark plug electrode element made of a sinter of ceramic powder comprising particles that are coated with a noble metal, in which "[t]his electrode element (3) serves as the firing tip of the center electrode." (Toya, col. 2, lines 52 65; See also Toya, col. 1, lines 30 to 40). It is respectfully submitted that Toya does not disclose **forming at least one conductor track by a currentless deposition of a metal onto a surface of a carrier composed of a metal oxide, a metal nitride and/or a metal carbide, and by a subsequent thermal treatment**. Indeed, the Office Action admits on page 2 that the electrode

element 3 is not a conductor track. However, the Office Action further asserts on page 2 that "an electrode axis (conductor track) of nickel or precious metals such as platinum covers the surface of the electrode element." Applicants respectfully disagree. The electrode axis disclosed by Toya is "an electrode axis (2) made of Ni or other heat-resistant non-precious metals," which is joined to the electrode element 3 "by means of a conventional electro-conductive glass seal (4) which is a mixture of glass and a metal powder." (Toya, col. 2, lines 48 to 49 and lines 56 to 59). In this regard, **the electrode axis 2 does not cover the electrode element 3, and more importantly, is not formed by a currentless deposition of a metal onto a surface of carrier composed of a metal oxide, a metal nitride and/or a metal carbide, and by a subsequent thermal treatment**.

It is also respectfully submitted that Toya does not disclose **connecting an evaluation device to the at least one conductor track**, which is configured to measure and evaluate a temperature-dependent change in resistance of the at least one conductor track formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and/or a metal carbide, and by subsequent thermal treatment, as recited in claim 14. Indeed, the Office Action admits on page 3 that "Toya does not teach an evaluation device."

Rosen purportedly concerns a sensor having a sensor element 102 in the form of a monocrystalline nickel-cobalt-manganese oxide spinel, a pair of electrical terminals 104 in ohmic contact with the sensor element 102, leads 106, and electrical resistance measuring device 110. (See Rosen, col. 7, lines 8 to 25; Figure 4). It is respectfully submitted that Rosen does not disclose forming at least one conductor track by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and/or a metal carbide, and by subsequent thermal treatment, as recited in claim 14. Indeed, the Office Action does not assert that Rosen discloses these limitations of claim 14.

It is also respectfully submitted that Rosen does not disclose **connecting an evaluation device to the at least one conductor track**, which is configured to measure and evaluate a temperature-dependent change in resistance of the at least one conductor track formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and/or a metal carbide, and by subsequent thermal treatment, as recited in claim 14. Although the

Office Action asserts on pages 3 to 4 that "an electrical resistance measuring device 110 is connected to the sensing element (temperature sensor) via leads 106 (conductor tracks)," it is respectfully submitted that the electrical measuring device 110 does not measure and evaluate a temperature-dependent change in resistance of the so-called conductor tracks (i.e., leads) 106. Instead, Rosen discloses "an electrical measuring device 110 adapted to measure the electrical resistance ***through the sensing element*** [102]." (Rosen, col. 7, lines 27 to 29) (emphasis added). In this regard, Rosen further provides that "[t]he particular resistance-measuring device illustrated in FIGS. 4-5 is a Wheatstone bridge," and that "[t]he resistance required to bring the bridge into balance is a measure of the resistance ***through the sensing element***." (Rosen, col. 7, lines 29 to 30 and lines 39 to 41) (emphasis added). Accordingly, the electrical resistance measuring device 110 is configured to measure and evaluate a temperature-dependent change in a monocrystalline nickel-cobalt-manganese oxide spinel, but **not a temperature-dependent change in at least one conductor track formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and a metal carbide, and by subsequent thermal treatment**, as recited in claim 14.

Bogenschutz purportedly concerns a process for chemically metallizing an inorganic substrate, in which an activation step and a step of applying an adhesion promoter is combined with at least one thermal treatment to improve adhesive strength between an applied metal layer and a substrate surface. (See Bogenschutz, Abstract). It is respectfully submitted that Bogenschutz **does not disclose forming at least one conductor track by a currentless deposition of a metal onto a surface of a carrier composed of a metal oxide, a metal nitride and/or a metal carbide**. Although the Office Action asserts on pages 5 to 6 that "Bogenschutz was used to teach the various ways of depositing metal including currentless deposition (at col. 1, lines 16-50) and thermal treatments (at col. 4, lines 20-28)," it is respectfully submitted that the various ways of depositing metal disclosed by Bogenschutz **do not include depositing a metal onto a surface of carrier composed of metal oxide, a metal nitride and/or a metal carbide to form at least one conductor track**, as recited in claim 14. It is also respectfully submitted that Bogenschutz does not disclose an evaluation device configured to

measure and evaluate a temperature-dependent change in resistance of at least one conductor track formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and a metal carbide, and by subsequent thermal treatment, as recited in claim 14. Indeed, the Office Action does not allege that Bogenschutz does disclose these limitations of claim 14. (See Office Action, p. 3).

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

As indicated above, the combination of Toya, Bogenschutz, and Rosen fails to identically disclose all of the limitations of claim 14, in particular, forming at least one conductor track by a currentless deposition of a metal onto a surface of carrier composed of a metal oxide, a metal nitride and/or a metal carbide, and by a subsequent thermal treatment, and connecting an evaluation device to the at least one conductor track, which is configured to measure and evaluate a temperature-dependent change in resistance of the at least one conductor track. Accordingly, even if it were proper to combine the Toya, Bogenschutz, and Rosen references as suggested (which is not conceded by Applicants), it is respectfully submitted that such combination does not render obvious claim 14, or any claims that depend from claim 14, including claims 15 to 19 and 22 to 24.

It is also respectfully submitted that the Office Action's assertions that it would have been obvious to modify the spark plug of Toya "to include thermal treating" and "to include an evaluation device" are improperly based on hindsight reasoning. Although the Office Action asserts that "any judgement on obviousness

is in a sense necessarily a reconstruction based upon hindsight reasoning ... so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from applicant's disclose," it is respectfully submitted that without the knowledge gleaned from Applicants' disclosure, the asserted modifications of the Toya spark plug "to include thermal treating" and "to include an evaluation device" would **only result in a thermally treated spark plug firing tip with an attached wheatstone bridge**. In this regard, in rejecting a claim under 35 U.S.C. § 103, Applicant's invention "*must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time*." Interconnect Planning Corp v. Feil, 774 F.2d 1132, 1138, 227 U.S.P.Q. 543, 547 (Fed. Cir. 1985) (emphasis added). Indeed, the Office Action does not assert that it would have been obvious at the time the invention was made to make such a combination. Accordingly, combining these prior art references without evidence of a proper suggestion, teaching, or motivation "simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight." In re Dembiczak, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999).

Moreover, it is respectfully submitted that the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Office Action's generalized assertions that it would have been obvious to modify or combine the references do not properly support a § 103 rejection. It is respectfully submitted that those cases make plain that the Office Action reflects a subjective "obvious to try" standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

> The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .
>
> **Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to**

> **pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.**

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima* facie obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .
>
> **Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

It is respectfully submitted that the present Office Action offers no evidence whatsoever, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding.

More recently, the Federal Circuit in the case of In re Kotzab made clear that even if a claim concerns a "technologically simple concept" -- which is not the case here --, there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed." The Court indicated that:

> In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific

> understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added). Again, it is believed that there have been no such findings.

Accordingly, Applicants respectfully submit that there is no evidence that the references relied upon, whether taken individually or in combination, would provide the features and benefits of claim 14. It is therefore respectfully submitted that claim 14 is allowable for these reasons.

As for claims 15 to 19 and 22 to 24, which ultimately depend from claim 14 and therefore include all of its limitations, it is respectfully submitted that these claims are allowable for at least the same reasons that claim 14 is allowable.

In view of the foregoing, it is respectfully submitted that claims 14 to 19 and 22 to 24 are allowable. Withdrawal of the rejection of these claims is therefore respectfully requested.

III. The rejection based upon Toya, Rosen, and Vadekar should be withdrawn

Claims 14 and 20 to 21 stand rejected under 35 U.S.C. § 103(b) as being unpatentable over Toya in view of Rosen and further in view of Vadekar.

It is respectfully submitted that, even if it were proper to combine the references as suggested (which is not conceded by Applicants), Vadekar does not cure the critical deficiencies of the combination of Toya, Bogenschutz, and Rosen as applied against claim 14 (as explained above). Indeed, Vadekar is merely cited for the disclosure of selective hydrogenation using palladium on crystalline silicia as a substrate with deposited palladium via vapor or gas deposition and reduction. (See Office Action, p. 4). Accordingly, for at least these reasons, Applicants respectfully submit that the combination of Toya, Rosen, and Vadekar does not render claim 14 or its dependent claims 20 and 21 unpatentable. Withdrawal of the

rejection is therefore respectfully requested.

CONCLUSION

In view of the foregoing, Applicants assert that the present invention is new, non-obvious, and useful. Furthermore, all issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,
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